Amendments to the Substitute Specification:

Please replace paragraphs [0007] – [0009] with the following three paragraphs;

[0007] Known solutions have been described in DE 198 31 372 and DE 199 54 164. These solutions, however, have the disadvantage that a relatively great deformation and hence measuring distance must be used as may be seen in DE 198 31 372 with reference to Figs 1b or 1c. A great disadvantage of the known solutions also consists in that there can be no ~~optimised~~ optimized adjustment of the axial force measurement. When the piezoresistive measuring layer on a U-disk is used as presented in DE 199 54 164, the change in resistance as a function of force exhibits an exponential relationship. Consequently, with high loads the sensitivity of the measurement falls since the gradient of the curves turns out to be considerably flatter. In order nevertheless still to obtain precise results for the axial force transmitted to the screw shaft a sensitive electronic measuring system is needed or particularly costly boundary conditions have to be created so that in spite of everything a sufficiently precise and informative measurement can be carried out. This gives rise to high costs for measurements, which may still be inaccurate.

[0008] Accordingly, it is an object of the present invention to provide a device for checking non-positive connections ~~which~~ that affords ~~an~~ a low-cost and exact determination of the axial force introduced into the non-positive connection, in particular a screw connection.

[0009] This task is solved by means of a device ~~according to claim 1~~ for non-positive connections, in particular screw connections, wherein the device possesses force-application elements and at least one measuring element, wherein the measuring element is provided at least in some areas with a layer exhibiting a force sensory effect, characterized in that the force sensory layer changes its electrical resistance due to changes of an applied force and the surface of the layer has as support profiles flat prominences constructed for recording force for recording a force applied by the force application elements.

Please replace paragraph [0019] with the following paragraph:

[0019] Independently of this a plurality of elevated areas possessing completely different geometries may also be provided. Thus, for example, individual areas may have collections of cylindrical elements located beside one another on the surface of the measuring element, rectangular elements, etc. In principle the support profile of these prominences is arbitrarily variable with regard to type and/or number. With the aid of ~~method~~ methods known from texturing technology pretty well any shapes are producible. Known methods include, for example, embossing, forming and pressing methods, methods from grinding and machining technology and etching methods, laser texturing and spark erosion. The different elevated areas (regardless of whether they are accommodated on a common side of the measuring element or not) are, if required, electrically addressable independently of one another.

Please replace paragraph [0023] with the following paragraph:

[0023] The force sensory layer can be formed from various materials. Possibilities include, for example, mechanically rigid semiconductors or known piezoresistive materials. The force sensory layer can be produced with the aid of known CVD and PVD methods and in the case of diamond-like piezoresistive layers production ensues, for example, by means of plasma CVD technology. Metal-doped, diamond-like force sensory layers can, for example, be produced by means of ARC, sputter and gas flow methods. With regard to potential layer materials we refer expressly to DE 199 54 164 A1 (also published as US 7,073,390 B2) in which an abundance of materials is specified. To avoid repetition reference is made only to this published application the full details of which relating to the material should be incorporated in the present application. It must be ~~emphasised~~ emphasized that constructing the force sensory layer of amorphous carbon is particularly advantageous. For example, graphitic structures having sp2 ~~hybridisation~~ hybridization can be provided in combination with diamond-like structures having sp3 ~~hybridisation~~ hybridization.

Please replace paragraphs [0026] – [0030] with the following five paragraphs;

[0026] The invention will now be explained with reference to a number of figures. ~~These show:~~

[0027] ~~Figure 1a~~ Figure 1 shows a device according to the invention for checking non-positive connections in the installed state;

[0028] Figures 2a and 2b show a plan view and a cross-section of a first embodiment of a measuring element according to the invention;

[0029] Figures 3a to 3f show other embodiments of a measuring element according to the invention; and

[0030] Figure 4 shows different prominence regions in plan view of another embodiment of a measuring element according to the invention.

Please replace paragraph [0036] with the following paragraph:

[0036] In a preferred version electrical contact takes place via the core of the measuring element 3 and the second contact via the ~~earthing~~ grounding of the device. However, other measurement-based evaluations are also possible.

Please replace paragraphs [0040] – [0043] with the following four paragraphs:

[0040] It is, however, expressly ~~emphasised~~ emphasized that the sleeve 10 is not an essential feature of the overall invention~~, ie that all~~ . That is, all of the embodiments shown here are also suitable without a sleeve 10, ~~ie~~ i.e., they are in direct contact with the component 12a or the screw head 2a.

[0041] With regard to the structure of the measuring element 3, apart from the nature of the prominences 5a and 5b different structural forms with regard to the material of a core 3' of the measuring element 3 and the force sensory or electrically insulating layers applied thereon are also possible. In the present case the core is composed of simple unhardened steel ~~but depending~~ . Depending on the application any hardened stainless steels or steel alloys are also possible or even ceramic materials or ~~glass-fibre~~ glass-fiber reinforced plastics (see the introduction to the description above).

[0042] Figures 2a and 2b show another embodiment of a measuring element 3 according to the invention. This has an electrically insulating layer 9 on its flat lower side [[8]]. In this case an electrical insulator has to be regarded as any substance having a specific resistance of 10^{15} ~~ohm-em~~ ohm-cm or more. Examples of insulators coming into consideration are Al_2O_3, TiO_2, SiO_2, SiN or a material composed of high-ohmic, diamond-like carbon sold under the trade name "SICON®". The measuring element 3 has a flat, hollow cylindrical cross-section having only one elevation 5a on the upper side arranged concentrically about a central opening. In this case the upper side is coated with a force sensory layer 4. Depending on the shape of the desired curve of compressive force versus change in electrical resistance and depending on the hardness/brittleness of the force sensory layer 4, the cross-section of the prominences 5a perpendicular to the circumferential direction of these circular prominences can have differing shapes. If introduction of pressure over a large area is preferred rectangular cross-sectional shapes as shown in Figure 2b are possible, but triangular or rounded shapes may be selected for a more pronounced increase in pressure.

[0043] Figures 3a to 3f show other embodiments of a measuring ~~elements~~ element 3 according to the invention. A common feature of all of them is that in the region of the elevations on the measuring element 3 they have at least in some areas a force sensory layer connected to an electrical contact. Advantageously, the force sensory layer should have a specific electrical resistance of less than 10^8 to 10^{-2} ~~ohm-em~~ ohm-cm.